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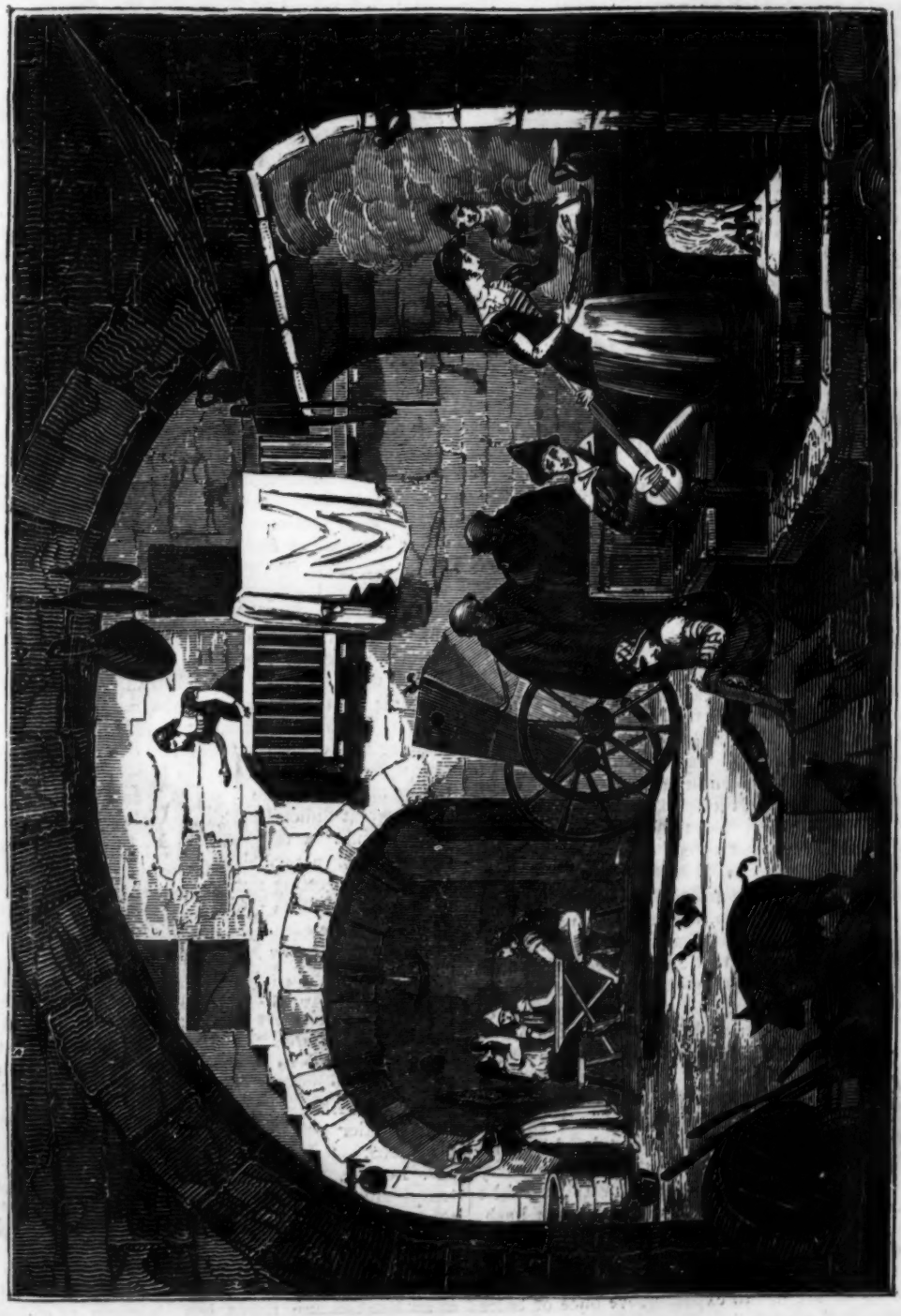
UNDER THE DIRECTION OF THE COMMITTEE OF GENERAL LITERATURE AND EDUCATION APPOINTED BY THE SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE.



INTERIOR OF A SPANISH INN.

INNS. No. I

Spanish Inns.

Of all the countries of civilized Europe, there is scarcely any one so notorious as Spain for the badness of the accommodation which it affords to travellers. Even its large cities, and the very capital itself, are not exempt from this reproach;—they all share it, though, of course, in a somewhat lesser degree, with the poorest villages, and the most solitary resting-places. It is to this circumstance that we may, in a great measure, attribute the fact that Spain has been comparatively so rarely visited by foreigners; the account invariably given by every traveller upon his return, of the hardships which he had experienced in his progress, was fully sufficient to deter any but the most enterprising, from attempting to follow in his steps. It is curious, too, that scarcely any improvement has taken place throughout the greater portion of the country, for the last 150 years; the accounts of recent writers exhibit nearly the same picture as those of travellers of a more remote date.

An "English gentleman," as he styles himself,—commonly said to be Mr. Bromley, who visited Spain towards the close of the seventeenth century, speaks somewhat pathetically of the sufferings which he endured in his tour. "The miserable poverty in this country," he says "and consequently very ill accommodation on the roads, makes travelling very uneasie. I had the misfortune to experience this, being forced to take up sometimes where neither bread nor lodging were to be had. I remember one night late I came to my inn, both cold and wet, but could neither have bread or wine, nor a bed to lye in, (the house affording only one poor sorry thing for the family,) no oyl for my lamp, no fewel of any kind to burn, nor any provision for our horses." And when he is about to quit, he takes his leave, hoping to meet with better entertainment in Italy, than he had found in Portugal and Spain, "for both their accommodations," he adds, "and the wicked vile temper of the people will soon tire any one, and make him give God thanks that he can say he hath with safety passed through these countries."

When Mr. Swinburne travelled through Spain in the years 1775 and 1776, the state of things was scarcely improved. He and his party were obliged to journey with a complete wagon load of baggage, carrying not only their own beds, but even their own provisions—bread, wine, meal, oil, and salt—from one great town to another; for they seldom met with anything in the inns but the bare walls, and perhaps a few eggs, which were always sold at an unconscionable price. If they chanced to find a few unbroken chairs, they used to esteem themselves uncommonly fortunate; yet for this poor accommodation they always paid dearly. Their mode of proceeding is thus described:—"As soon as we arrive at one of these barns, called *Ventas*, our first care is to set up our beds. The kitchen is generally at one end, the mules stand in the back part, and our apartment is a partition run up against the wall to the street, with a hole or two for light, defended by three or four very useless iron bars, for a pigmy could not squeeze through the window. Next our cook takes his stand at the hearth, to warm our broth, which we carry ready made in a kettle behind our chaise; and if he can procure fuel and elbow-room, tosses up a hash, or some such campaign dish. Sometimes we are lucky enough to have an opportunity of setting our spit, or broiling a chop upon our gridiron; but these are luxuries we are not to expect above once or twice in the course of a week."

The Rev. Mr. Townsend, who performed his journey in 1786 and 1787, prefixed to it certain "Directions to the Itinerant in Spain," which contain a tolerably comprehensive list of the things requisite for one desiring to "travel commodiously in Spain." A good constitution and two good servants are among them; the latter should be a Spaniard and a Swiss, and one of them should be sufficiently acquainted with the art of cooking, and also with the "superior art," as he terms it, of providing for the journey,—"which implies a perfect knowledge of the country through which he is to pass, that he may secure a stock of wine, bread, and meat, in places where these excel, and such a stock as may be sufficient to carry him through the districts in which these are not to be obtained"—rather a respectable stock of qualifications. Moreover, in his baggage, for the transport of which three strong mules are to be purchased—he should have sheets, a mattress, a blanket, and a quilt, a table-cloth, knives, forks, and spoons, with "a copper vessel sufficiently capacious to boil his meat," which should be furnished with a cover and a lock; and lastly, each of the servants should have a gun slung by his side.

The picture which recent travellers give us of the inconveniences attendant upon a journey through Spain at the present day, is scarcely more attractive than that drawn by their predecessors in former years. A partial improvement has, indeed, taken place on these lines of road, upon which *diligencias*, or stage-coaches, similar to the well known French *diligences*, have of late been established. Between Vittoria and Madrid the traveller may fare pretty well; Mr. Inglis says that he always found a clean bed and something upon the table, of which it was possible to make a tolerable meal. The diligence which runs between Madrid and Bayonne passes along that line of road; and preparations are always made at fixed stations for the refreshment of the passengers. If any one of them does not partake of the dinner or supper which may be provided, he pays two-thirds of its price by way of *indemnificacion* to the master of the inn. This indemnification is looked upon by some as perfectly fair; without it the traveller by the *diligencia* could never count upon a meal at any *posada*, because it would not answer the innkeeper's purpose to incur the expense of preparation upon a road affording so few customers, without the certainty of some remuneration.

The great difficulty which the traveller has to contend against in the smaller inns of Spain, is the certainty, or a probability amounting very nearly to certainty, of getting nothing to eat, and only the floor or a chair to sleep upon. If, therefore, he intends to traverse the country to any extent, he must carry his bed with him as Mr. Townsend directs, and keep constantly supplied with provisions. His own implements for eating should also accompany him, for knives and forks are luxuries rarely to be met with in a Spanish *venta*; the Spaniards who resort to it are accustomed to dispense with forks, and as for knives, every one of them has his own clasp-knife with him. Above all, it is essential to the comfort of the traveller that he should not be over nice and fastidious. "If ever these *Views of Spain*," says Mr. Locker, speaking of his own work, "should tempt any of our countrymen to follow our steps through this interesting country, we would advise them to lay aside the proud English habit of comparing foreign conveniences with the accommodations they leave behind them. The traveller who arrives at an English inn needs but his purse to command all ordinary comforts; but it is not yet so in Spain.

After a long and wearisome journey, if he come unprepared to his *posada*, he may sometimes be wofully disappointed. To the question, 'What can I have to eat?' a common reply is, 'Whatever you have brought.'"

Though, however, provision is seldom made at the Venta for guests, the hostess is ready to cook such articles as the prudent traveller has purchased by the way; and when he departs in the morning, he pays for the *ruido de la casa*, (the disturbance he has made in the house,) as the principal charge in the reckoning. He is even at liberty to take upon himself the care of preparing his own meal; "and if," says Mr. Inglis, "he possesses the faintest idea of the art of cookery, this will generally be his wisest plan." Spanish cookery is seldom to the taste of a stranger; their peculiar mode of seasoning their food meets with the approval of few but themselves. They are very fond o spices, and will scarcely eat anything without saffron, pimento, or garlic; according to Mr. Swinburne, they delight in wine that has a strong taste of the pitched skin, in which it is the practice to keep it in this country, and in oil that has a rank smell and taste. "Indeed," he says, "the same oil feeds their lamp, swims in their pottage, and dresses their salad; and in inns, the lighted lamp is frequently handed down to the table that each man may take the quantity he chooses." Throughout a large part of Spain, the first two dishes placed upon the supper-table are soup, so called, and boiled eggs; the soup, however, is said to be "not soup," the whole of the liquid being generally absorbed by the bread. The eggs are always boiled as if for a salad; when bruised, however, and eaten with vinegar, and pepper, and bread, this part of the supper is not to be rejected; because, as we are told, "it is more than probable that the stew or fowl which follows, will be found reclining upon a bed of oil and garlic, from which it is impossible to extricate an untainted morsel." Good wine, however, with sometimes delicious grapes and melons, is seldom wanting; and with this the traveller may learn occasionally to console himself.

Our engraving represents the interior of the Venta at the small hamlet of Las Casas de Benecasi, which is situated in the kingdom of Valencia, on the road leading from Murviedro into the Principality of Catalonia; it is taken from one of the views given by Mr. Locker, who says that it may serve as a specimen of the low *posadas* in Spain. The kitchen is the general rendezvous of the whole family; it is also the common thoroughfare of the goats, the pigs, and the poultry, the doors being rarely closed, even at night. Beneath the mouth of a huge chimney appears the hostess in gay attire, fuming before her frying-pan, which successively receives salt-fish for the carriers, omelets and bacon for the better guests, with oil and garlic for all. There she reigns supreme, for all else, whatever be their rank or calling, mingle in perfect equality.

The Spaniards are loud talkers, but amidst all the clamour and confusion her voice and authority prevail. The guests cluster round her with their cigarros, and bandy their jests with unceasing mirth. This is their greatest delight, and no people on earth surpass them in low humour. Here at night the carriers repose on their pack-saddles, their mules and carts being stationed in the outer apartment, where commonly stands the well, which generates myriads of musquitoes to infest the lodging-rooms above, and these swarm with vermin of a baser kind.

THAT man alone can be called happy, who is at peace with his own heart and with his Maker.—SOUTHEY

THE NIGHTINGALE.

IT is an error to suppose that the Nightingale is a melancholy bird; an error that has arisen from the heathen writers, who have ascribed to it a character and invested it with a name foreign to its nature and habits. The story related by the Roman poet, Ovid, of the fabled fate of Philomela, (who, mourning the loss of her children, was changed into a Nightingale,) though it awakens our pity, ought not to lead us to adopt it. The modern poets, indeed, have aided this imaginative fraud, and their lines teem with allusions to the pensive and melancholy habits of the Nightingale. The little Philomela is highly poetical, but a very glaring breach of Nature's laws.

Not to open the controversy (in which even the statesman Fox was a combatant), whether the song of the Nightingale be merry or sorrowful, we cannot adopt either alternative. It is not merry in the sense which usage has given to that word, but it certainly is a song of joy. The outpouring of a gladdened heart, (full of melody and love, for the male bird is the songster,) and expressive of its gallantry and devotion. It certainly is not sorrowful, though it is occasionally interspersed with plaintive notes.

There is something novel in its nightly song; a novelty which is heightened by the repose that reigns around, and by our own feelings at that season of rest. We are lingering listeners; for the shades of night rest on our eyelids, and our sense of loneliness imbues our spirits with melancholy: but that loneliness, that repose, and that season, awaken in the Nightingale all its melody, and render it lively and gay. Its song, during fine clear weather, is incessant from eleven at night until two in the morning. It sings also in the day, but not so loud or with such spirit as in the night.

We do not deny to the nightingale the faculty of expression, but cannot by any means subscribe to the opinion, that in its song there are expressions of grief: for, unless we suppose it the creature of the most unnatural sensibility, such an opinion is groundless. We must put, not only its nature, but all nature to the rack, to suppose that, within a half minute, expressions of grief and pleasure are uttered alternately with causeless indifference! How then shall we speak of this bird? Not as a phenomenon, but simply, that its physical powers and its constitution are, in the highest degree, adapted for the exercise and practice of song. It is a warbler, designed by Providence to fill the first place in that scale of excellence and order, which is to be traced in every species of animal life.

Another error is, that the Nightingale is a shy bird. The writer has stood within three yards of one in full song. The effect was thrilling! Variety, still varied, flexibility, expression, softness, and power combined? The choicest and most captivating melody! Again, they are easily caught. The trap being very simple, and the poor birds more so.

Nightingales will sing in confinement, but their habits and temper are both unsuited to its trammels. In that state they require continued attention; and unless the course of feeding is well understood and practised, they die.

They, are beyond all doubt, migratory; but in other respects similar to the Robin, of an ashen colour, and rather larger.

In all ages and countries they have been a theme of praise; and poets have made them objects of peculiar admiration and regard, including Milton, Thomson, Byron, and Coleridge; a galaxy, which might raise the envy of heroes, and which kings would gladly share.—REQUHART.

THE MARKET CROSS, AT DEVIZES

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THE MARKET CROSS at Devizes, in Wiltshire, was erected about fifteeen years ago, at the sole expense of Lord Sidmouth, as a memorial of his attachment to the interests of the borough, which he had represented in several successive parliaments, previous to his elevation to the peerage. It is built entirely of Bath stone, and was designed and executed under the superintendence of Benjamin Wyatt, Esq., architect. This cross in its lower department forms a square, having a buttress at each angle, surmounted by an enriched pinnacle. The spire is an octagon, with ribs and crockets at the several angles, and is tastefully decorated.

The following remarkable inscription appears on the eastern side of the structure:—

"The MAYOR and CORPORATION of DEVIZES avail themselves of the stability of this building, to transmit to future times the record of an awful event, which occurred in this market-place, in the year 1753; hoping that such record may serve as a salutary warning against the danger of impiously invoking Divine vengeance, or of calling on the holy name of God to conceal the devices of falsehood and fraud.

"On Thursday the 25th of January, 1753, Ruth Pierce, of Potterne, in this county, agreed with three other women to buy a sack of wheat in the market, each paying her due proportion towards the same; one of these women, in collecting the several quotas of money, discovered a deficiency, and demanded of Ruth Pierce the sum which was wanting to make good the amount; Ruth Pierce protested that she had paid her share; and said, *She wished she might drop down dead, if she had not.* She rashly repeated this awful wish, when, to the consternation and terror of the surrounding multitude, she instantly fell down, and expired, having the money concealed in her hand."

In a sermon preached on the subject, by Dr. H. Stebbing, Archdeacon of Wilts, and published in 1760, we find a full account of the striking dispensation, the substance of which is recorded above. "A memorial of this extraordinary event," says he, "now (1756,) stands written upon a painted board fixed up at the market cross, where the thing happened; and I submit it to the common sense of mankind, whether this and such-like instances, many of which occur in all history, are not a very strong presumptive evidence from fact, for the truth of a directing Providence!"

To this may be added another case of guilt suddenly overtaken by a signal and sudden infliction. It is told of Archbishop Leighton, that a tremendous storm of thunder and lightning happened one day, as he was going from Glasgow to Dumblane. He was seen when at a great distance by two men of bad character: they had not courage openly to rob him; but wishing to hit upon some method of extorting money from him, one of them said, "I will lie down by the way-side, as if I were dead; and you shall inform the archbishop that I was killed by the lightning, and beg money of him to bury me." When Dr. Leighton arrived at the spot, the wicked wretch told him the fabricated story: the archbishop condoled with the survivor, gave him money, and proceeded on his journey. But when the man returned to his companion, he found him *really lifeless!* Immediately he began to exclaim aloud, "Oh, sir, he is dead! Oh, sir, he is dead!" On which the archbishop, perceiving the fraud, left the man with this serious reflection:—"It is a dangerous thing to trifle with the judgments of God."

We ought not to sit in judgment; but surely the wicked is driven away in his wickedness, sometimes in a very exemplary manner. Nor should such instances as those just quoted, lead us to form uncharitable conclusions. When any great calamity has happened to a fellow-creature, who was, to all human appearance, seriously liable to some peculiar visitation, it ought to make us look closely to ourselves; it ought to induce us to consider seriously how we should have been prepared for the event, and in what state it would have found us. It is recorded of one of the ablest and best of men of the age in which he lived, that when he heard of a criminal condemned by the laws of his country to die, he used often to say, "Who can tell whether this man is not better than I? or if I am better, it is not to be ascribed to myself, but to the goodness of God." He thought, no doubt, of the religious advantages with which he himself had been blessed, and the various checks and warnings he had met with, to which the other perhaps had been a stranger; and thus, though abhorring the guilt, and seeing it in its own dark colours, he compassionated the offender, and made every allowance which could fairly be made, consistently with justice and truth.

THE ADVENTURER ON THE SEA OF LIFE.

. . . . . The gales
Of pleasure haply waft him, and he bounds
Exultingly upon the flatt'ring main;
Nor heeds the inexperienc'd boy the hints
Of prudence, and the counsels of the wise;
He steers impetuously through dancing waves,
And oceans of illusive bliss, till now,—
Crashing upon her keel, his vessel lies
A total wreck upon th' undreaded reef!
"Avoid the shoal!" the sacred preacher cries;
The volumes of the dead and living ope
The monitory page, alas, in vain!
If Passion hold the helm, and Pleasure fill
The swelling sail, though Reason, Conscience, say
"Avoid the shoal!" the voyager is lost!—CARRINGTON.

GREAT NUMBERS.

No. III. Numbers Descriptive of Motion.

When bodies are described as being in *motion*, or in an opposite state, *at rest*, such terms are, of course, employed in a relative, or comparative, sense. For aught that we know to the contrary, motion may be as necessary to the existence of matter, in all its diversities of form, and amidst the perpetual changes of which it is susceptible, as heat, light, electricity, and magnetism. We know nothing, by experience, of a state of perfect rest,—of absolute repose, but, on the contrary, wherever we turn our eyes we detect decisive proofs of activity. In the heavens above and on the earth beneath, a series of successive movements are unceasingly operating. Matter which enters into the constitution of animated beings changes its form, its character, and its locality; similar results ensue in the less complicated, but not the less beautiful, structures of the vegetable world; and the solid rock—the framework of the globe we inhabit—is equally endowed with a principle of motion—its elementary particles being as obedient to the laws of attraction, expansion, decomposition, and subsequent renovation, as are those of the most fragile plant that grows on its surface.

These movements bear but little analogy to the motions which originate in mechanical contrivances; still less do they admit of comparison with those which characterize matter when endowed with life; and they are yet further at variance with the extraordinary movements presented to us by the heavenly bodies, revolving in their respective orbits round the sun.

The motions of bodies are described as being *slow*, or *rapid*, in proportion as the time occupied by them in passing through a certain space is greater or less; bodies are also said to move slowly or rapidly, with relation to their general habits and ordinary rates of progression. In the common affairs of life we know but very little of rapid movements, excepting as we observe them in other bodies, and are thus enabled to assure ourselves of the facts. For instance: we have no notion of a man, by his own efforts, moving at the rate of 50 miles an hour. A celebrated race-horse is stated, however, to have cleared on one occasion a mile in a minute, (60 miles per hour;) but that is a rate which could not, of course, be long maintained. The most rapid mode of transit, applicable to the ordinary purposes of life, is that of which we have in modern times availed ourselves, namely, by steam-engines on a rail-road. These move at a rate averaging from 20 to 25 miles an hour. On some occasions they are said to have moved at the rate of 50 miles an hour, without any danger to the carriage, or inconvenience to the passengers.

Velocity is a term usually employed to denote rapid motion. It is derived from a Latin word which signifies *swiftness*. Thus we speak of the velocity of wind—the velocity of a planet—or the velocity of light. But velocity indicates only in general terms the rapid motions of bodies, without determining either the rate or conditions of their progress. A body moving at the rate of 50 or 100 miles an *hour*, is said to move with velocity: the same term is equally applicable to another body whose rate of progression might be 1000 or 10,000 miles in a *minute*. Velocity is *absolute* or it is *relative*; absolute when it relates to a body that moves over a certain space in a certain time, relative when there is a reference to another moving body. Velocity is also *uniform* or it is *unequal*; uniform when a body moves over equal distances in equal times, unequal when its motion is either retarded or accelerated.

Locomotion implies the power of moving from one place to another. It is this which distinguishes animals from plants. The term is also applied to machines, whose propelling force is included within themselves; as locomotive engines on a rail, or common, road.

Among animated beings, connected with our globe, birds are endowed in an eminent degree with the power of locomotion. In this respect they seem to surpass all other animals; not only in reference to the rapidity of their movements, but also in continuing them for a long time without taking food or rest. It is well ascertained that land birds cross vast tracts of ocean; flying at a rate equal to 50 or 60 miles an hour, and keeping on their course both by day and night. The *Blue Birds* of America, in their periodical migrations, are frequently seen in situations where a distance equal to 600 miles interposes between them and the nearest point of land from which they had taken their flight. Few birds pass over so great an extent of surface in the same time, as our cheerful summer visiters, the Swallows; who fly in their usual way at the rate of a mile in a minute, and are thus engaged, without apparent fatigue, during 10 or 12 hours every day. There is one little bird, however, the *Swift*, which appears to excel all others in the rapidity of its movements. An eminent naturalist, who has assiduously studied the habits of this bird, estimates its motions as being equal to 250 miles an hour. It eats, drinks, and collects materials for its nest on the wing; living in the air more than any other bird, and performing all its functions there, excepting those of sleep and incubation.

Turn we now from these allusions to terrestrial movements, to those which relate to the heavenly bodies.

The earth, as well as each of the planets with which it is associated, revolves round the sun with a velocity exactly proportioned to its relative bulk and its distance from that resplendent body. These motions of the planets are not uniform; on the contrary, they are constantly varying throughout the respective routes assigned to them. But notwithstanding these apparent irregularities, each planet performs its entire circuit with undeviating punctuality, a circumstance sufficient of itself, were it the only one with which we were acquainted in relation to the planetary system, deeply to affect the mind with the perfection of His operations, "who is wonderful in counsel and excellent in working."

The precision with which the earth performs its daily and yearly revolutions, supplies us with the only infallibly correct means of measuring time. In by-gone days time was measured in a very rough way, as by the hour-glass and the clepsydra*; the former, a coarse and imperfect contrivance for counting out equal portions of time; the latter, an instrument susceptible of considerable exactness, measuring time by the flowing of water from one vessel to another, but, like the hour-glass, exceedingly inconvenient, from the constant attention it required. Clocks and watches are almost the only instruments now employed for ascertaining the lapse of time. The perfection to which they have attained entitles them to our confidence not only for ordinary purposes, but also in those branches of astronomical science in which greater accuracy is indispensably necessary. That beautiful machine termed by way of distinction a *chronometer*†, if it be at all deserving the name, will not vary in its rate of going a single

* See *Saturday Magazine*, Vol. VI., p. 188.

† From two Greek words, signifying *to measure time*.

second during many successive days. But the chronometer is accurate only by comparison with those instruments whose motions are less perfect and uniform. The errors of chronometers require to be corrected by a frequent reference to natural events, which, by long experience, we know to happen at certain intervals.

Every planet with which we are acquainted turns on an imaginary line, called its axis, which passing through its centre and terminating at opposite points of its surface is there denominated the poles. Some of the planetary bodies revolve with much greater velocity than others. As examples, we will mention the earth and Jupiter. The circumference of the earth is estimated in round numbers at 25,000 (twenty-five thousand) miles. Now as the earth makes an entire revolution on its axis in rather less than 24 hours (23 hours, 56 minutes, and 4 seconds,) every object at the earth's surface in the immediate vicinity of the *equator** must necessarily move in that time through the space denoted above, which is with a velocity somewhat exceeding *seventeen miles in a minute.* The circumference of Jupiter is nearly eleven times that of the earth: in round numbers we may describe it at 273,000 (two hundred and seventy-three thousand) miles. Jupiter, however, although so much larger than the earth, performs its daily revolution in less time, namely, in 9 hours, 55 minutes, and 33 seconds. The objects at the surface of this magnificent planet near its equator move, therefore, with a velocity equal to about 458 *miles in a minute.*

Rapid as is the diurnal motion of the earth, it bears only the same analogy to the speed with which it pursues its journey through the vast expanse of the heavens, that the ordinary walking pace of a man, say at four miles an hour, does to the rate at which the *swift* flies, which, as we have already seen, is estimated at 250 miles an hour. There is something very impressive in the thought, that whilst our globe is whirling round with a rapidity far surpassing whatever comes within the limits of our observation in the movements of men, of animals, and of machines; yet we are not, apparently, affected, nor in any way inconvenienced by this incessant activity; but when we further reflect, that we are participating in a movement still more rapid, the mean rate at which the earth proceeds in its orbit being *eighteen miles and three quarters in a second,* the mind is lost in wonder, and we feel at once our inability calmly to survey, and completely to comprehend, these stupendous monuments of Jehovah's originating and sustaining power.

We readily admit, that of those who have now an opportunity of making themselves acquainted with the general phenomena of the universe, not one in a hundred, and probably not one in a thousand, possesses the means and the knowledge requisite for demonstrating the relative magnitudes, motions, and distances of the heavenly bodies. But the sublime truths which astronomy announces, are not the less susceptible of proof, because a few only, as compared with the mass of mankind, are permitted to penetrate into regions far beyond the ordinary limits of human vision. Vast and important as is the amount of secular knowledge, when viewed in the aggregate, we are justified in asserting, that no department of it is so perfect as that of astronomy. Here it is that man has been most successful in his efforts to reduce his knowledge to a system. Profiting from age to age by those who have preceded them, astronomers have at length attained to a general theory of that section of the Divine empire to which our planet belongs, that enables them to compute the sizes, and distances, and rates of motion of the numerous bodies known to them as belonging to the Solar System, with a most surprising degree of accuracy; the process employed yielding results equally certain and satisfactory as those methods of measurement and calculation which are most esteemed in conducting similar operations, among the every-day transactions of life.

The motion of *Light* next claims our consideration. Of the elementary constitution of light we must be content to confess our ignorance; of its physical effects we have the most decisive evidence throughout every part of the visible creation. We are now entering upon ground where we shall find that our *comprehending* faculties are more severely taxed than our *believing* faculties,—a distinction that is not, we fear, sufficiently understood. Some there are who affect to doubt, or disbelieve, whatever they cannot comprehend. A familiar example will indicate the folly, as well as the inconsistency, of such pretences. We *believe,* because experience and observation unanimously attest the fact, that food is necessary to the sustenance of life; but can we *comprehend,* in all their details, the processes by which food is converted into the dissimilar materials of which our bodies are constructed? The wisest and the best of men are ever the most willing to avow the scantiness of their attainments. Surely a posture of deep humility is that which best becomes creatures whose breath is in their nostrils, and whose term of earthly existence is but as a hand-breadth.

"As quick as lightning" is a figurative expression descriptive of any very rapid movements. Until within the last 160 years, the passage of light was supposed to be instantaneous. It has, however, been satisfactorily ascertained, that, although light is propagated with prodigious rapidity, its motion is gradual. Light travels from the sun to the earth in about eight minutes, the mean distance being 95,000,000 (ninety-five millions) of miles. The velocity of light is, therefore, in round numbers, equal to 192,000 (one hundred and ninety-two thousand) miles in each *second* of time!

The motion of *Electricity* is somewhat analogous to that of light; no perceptible interval of time being occupied by it in passing through the longest circuit hitherto contrived, which was more than 4 miles in extent. Some recent experiments on this interesting subject, which are as beautiful in arrangement as they are ingenious in conception, seem to indicate that electricity is propagated through good conductors (as a copper wire) with greater velocity than that with which light proceeds through the planetary space, the motion of electricity being estimated as equal to 288,000 (two hundred and eighty-eight thousand) miles in a second.

Enough has been said to show that man, in his present state of infirmity, is capable of understanding and of appreciating only a few fragmentary portions of the wonderful works of his beneficent Creator. He is admonished and encouraged, however, to look forward to another state of being. There the immortal spirit, separated from its frail tenement of clay, shall put forth all its energies, advancing in knowledge through eternal ages, whilst contemplating the endless diversities of omniscient skill. To that world of holiness and of happiness may the writer and the reader daily aspire! R. R.

* From a Latin term which means *to make equal.* It refers to an imaginary line passing round the earth in a direction east and west and equally distant at every part from either pole.

THE USEFUL ARTS. No. VIII.

Herbaceous Plants.—Mode of Propagation.—Fruit Trees, Hot Beds, Hot Houses and Conservatories.

Herbaceous plants are generally raised from seed, or by dividing the roots of perennials, but shrubs and trees are more commonly propagated by shoots, suckers, cuttings, layers, &c.

Shoots and *suckers* are the thin branches rising from the top of the root of shrubby plants; these are taken off from the parent stem, so that a piece of the root of that parent may come away with each sucker. They are then cut down till only two or three *eyes*, or buds, are left, and the pieces so prepared are planted sufficiently deep in the ground; being covered up from the sun and air, by a hand-glass and mats, they soon strike root and grow, and are then carefully transplanted into the places where they are to remain.

Cuttings are pieces of a young branch, or side shoot, taken off with a sharp knife, and cut down till only five or six buds are left; these being planted about one-half of their length in the earth, roots will grow out of the buds underground, and from between the bark and wood at the bottom. They do not strike root so soon as suckers, and therefore require to be kept longer covered, and frequently watered: but the tree ultimately produced from a cutting, is better than one produced from a sucker; cuttings, therefore, are always preferred for propagating fruit-trees.

Layers.—The mode of propagating by layers, is applied to those trees of which cuttings do not *strike* readily; it consists in bending down a branch gently, and *laying* a portion of it in a trench dug in the ground to receive it. The branch is kept down in the earth by forked pegs of wood, or by stones laid upon it. Roots spring out of the knots of the portion so buried; and while these are forming, the branch continues to derive nourishment from the parent stem. When a sufficiency of new roots are grown, the branch may be cut off close to the ground, to separate it from the original plant, and can be transplanted to the situation where it is wanted.

The most important mode of propagating particular *varieties* of fruit-trees, is by *budding* or *grafting*. The former is done by cutting a bud out of the tree to be propagated, and inserting it in a slit made in the bark of a *stock*, or the stem of another tree of the *same species of plant*. The operation is a delicate one, for it is essential that the *liber*, or inner barks of the bud and of the stock, should be in accurate contact. *Grafting* is applying a short cutting of the *subject* to the stock, so that a perfect contact may exist between the *libers* of the two parts. The bud, or the graft, must be bound round, and covered over with clay at the point of junction, to exclude the air, and allow of a perfect union of the two parts: when this has taken place, the bud, or graft will grow into a branch, and in time form a head on the original stock, which will produce fruit of the same kind as that of the tree which was to be propagated.

Fruit-trees are cultivated, either as *standards*, that is, as single isolated trees, or as *espaliers*, or trained against a wall. Standard trees are going into disuse in all good gardens, as not allowing of the necessary care and cultivation, nor of the fruit being so conveniently gathered.

Espaliers are trees trained against wooden frames, which allows of the sun and air getting to both sides of the plant; but training against a wall is preferred for the tenderer fruits, as peaches, nectarines, &c., because the wall affords shelter from the north wind, the plant being always put on the southern side. The body of the wall retains the heat of the sun, and thus acts as a stove in forwarding the growth, and ripening the fruit.

Another advantage attending training fruit-trees against a wall is, that they may then be covered over with old canvass or bunting, to protect them from frosts, or with nets to keep birds from getting at the fruit when it is ripening. The art of *training* a tree properly, requires considerable skill and knowledge; it is done by pruning the shoots as they form yearly, so as to leave buds which will afterwards grow in the right direction, and produce a regular form in the tree: but this form must be often modified, either to retard the growth of a branch which is too active, or to forward one which is backward; and this is effected by following the laws which regulate the distribution of the sap in the plant. The branches are trained and fixed against the wall, by means of shreds of woollen cloth, which are put around the stem, and then nailed.

There are a few plants cultivated for their fruits, which being originally brought from warmer climates, require constant shelter in this country; but as no vegetable will thrive, or ripen its fruit without abundance of light, the buildings erected for the purpose of protecting these exotics, must consist chiefly of glass.

Melons and cucumbers, are raised on hot-beds, with glass light frames, such as that shown in page 16; but pine-apples and grapes require greater and more constant heat to bring them to maturity, than a simple hot-bed and frame can supply. The *pit* in which pine-apples are forced, resembles the plain frame and lights in general form, only it is altogether larger, and the upright sides are built of brick, with a *flue*, or long horizontal chimney, running round it inside, leading from a furnace, the mouth of which is on the outside of the back wall. The fire being lighted in this furnace, the hot air passes through the flue, and warms the interior of the pit, and finally passes up an upright chimney. The rectangular central pit left within the flue, is filled with old tanners'-bark, and in this the pots containing the plants are sunk.

The hot-houses in which grapes are reared, are constructed on the same principles, only on a larger scale, so that persons can walk round them. The vines are planted out of doors, against the front wall of the house, and the stems being brought through holes, the branches are trained to iron wires, fixed to the beams of the glass roof, so that the grapes may be as near the light as possible. The greater part of the space in the house being thus left unoccupied, is generally devoted to rearing exotic tender plants, either for the beauty of their flowers, or for the sake of their singularity.

Within the last few years, these kinds of buildings have been warmed by means of steam raised in boilers, and passing through iron pipes within the hot-houses or pits.

Green-houses and *Conservatories* are erections of a similar kind, but constructed with more taste, so as to be agreeable to the eye, as well as useful; they are provided with flues or pipes for warming them in winter.

WINGFIELD CASTLE, SUFFOLK.

About six miles north-east of Eye, in Suffolk, is the village of Wingfield. This was the seat of an ancient family, who, as it is supposed, took their name from the place. There are pedigrees of the Wingfields which would give them possession of the castle of Wingfield before the Norman conquest, but there is nothing to establish the fact. Early in the reign of Edward the Third it was the seat of Richard de Brews, who had a grant for a fair to be held here, and it probably first became the residence of the Wingfield family in the time of Sir John Wingfield, a soldier of high character in the martial reign of Edward the Third, and chief counsellor of the Black Prince.

About 1362 the widow and brother, the executors of this valorous knight, agreeably to his bequest, built a college here for a provost and several priests, dedicating it to St. Mary, St. John-the Baptist, and St. Andrew; and, by the marriage of Catherine, daughter and heiress of the said Sir John, to Michael de la Pole, Earl of Suffolk, the manor and extensive estate attached to it, passed into the hands of that family, which makes such a striking figure in the page of English history. In the collegiate church was buried, in 1450,

"The Duke of Suffolk, William de la Pole,"

to whom, in conjunction with Beaufort, Cardinal of Winchester, was attributed the murder of the good Duke Humphry of Gloucester. Shakspeare, in his Second Part of *Henry the Sixth*, not only describes Suffolk and Beaufort

As guilty of Duke Humphry's timeless death,

but paints in vivid colours the shocking end of both these noblemen, and particularly the terrors of a guilty conscience in the case of Beaufort, who

Dies and makes no sign.

Close upon this horrid deed followed Suffolk's tragical and untimely fate. Having been accused of high-treason, and (that charge failing,) of divers misdemeanours, the public hatred pressing heavily upon him, he was sentenced by King Henry the Sixth to five years' banishment. Having, in consequence, quitted his castle at Wingfield and embarked at Ipswich, intending to sail for France, he was intercepted in his passage by a hired captain of a vessel, seized in Dover roads, and beheaded "on the long-boat's side." His head and body, being thrown into the sea, were cast upon the sands, where they were found, and brought to Wingfield for interment. His duchess was Alice, daughter and heiress of the poet Geoffrey Chaucer. His son and successor, John de la Pole, the restored Duke of Suffolk, who married Elizabeth, sister of King Edward the Fourth, was buried at Wingfield in 1491.

The castle, represented in the engraving, was thus distinguished for noble, but, doubtless, often turbulent inmates. It stands low, without any earth-works for its defence. The south front, which is the principal entrance, is still entire, and the west side is a farm-house. The arms of De la Pole, with those of Wingfield, cut in stone, remain on each side of the gateway.

It appears that the Wingfields branched off, and removed to Letheringham and Easton, in the same county. Sir Anthony Wingfield, who flourished in the reigns of Henry the Eighth and Edward the Sixth, was Captain of the Guard, Vice-Chamberlain, Knight of the Garter, and a Member of the Privy Council. Under Henry, it is said, there were eight or nine knights at the same time, all brothers, and two Knights of the Garter, of this family! and the same king employed Sir Anthony to assist in the execution of his will, for which he bequeathed him a legacy of 200*l.* His descendant of the same name was created a baronet by King Charles the First in 1627*. The estate of Wingfield was, for many years, in the Catlyn family; it afterwards devolved to the heirs of Thomas Leman, Esq., and is now vested in Sir Edward Kerrison, Bart., M.P. for Eye.

* The present representative of this family is John Wingfield, Esq., of Tickencote, in the county of Rutland. Further particulars of the Wingfields, "famous," as Camden says, "for their knighthood and ancient nobility," may be found in BURKE's *History of the Commoners of Great Britain and Ireland.*

THE EVENING HOURS.

SWEET evening hour! Sweet evening hour!
That calms the air and shuts the flower;
That brings the wild bee to its nest,
The infant to its mother's breast.

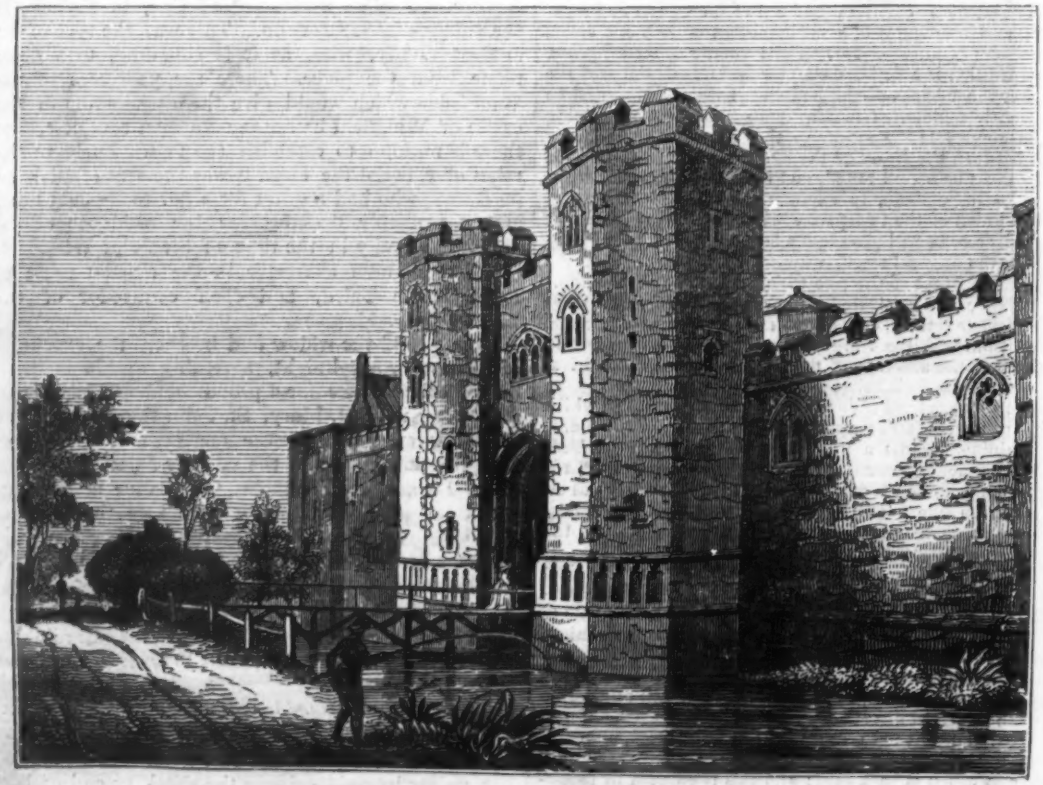
Sweet hour! that bids the labourer cease;
That gives the weary team release,
And leads them home, and crowns them there
With rest and shelter, food and care.

O season of soft sounds and hues,
Of twilight walks among the dews,
Of feelings calm and converse sweet,
And thoughts too shadowy to repeat!

Yes, lovely hour! thou art the time
When feelings flow and wishes climb;
When timid souls begin to dare,
And God receives and answers prayer.

Then, trembling, through the dewy skies,
Look out the stars, like thoughtful eyes
Of angels, calm reclining there,
And gazing on the world of care.

Sweet hour! for heavenly musing made,
When Isaac walked and Daniel prayed;
When Abram's offering God did own,
And Jesus loved to be alone.—REV. H. F. LYTE



WINGFIELD CASTLE, IN SUFFOLK.

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